

LOCKABLE MEDIA STORAGE BOX WITH LOCK AND KEY

CROSS-REFERENCE TO RELATED APPLICATIONS

5 This application is a continuation application claiming priority from United States Patent 6,601,701, dated August 5, 2003, that is a continuation-in-part application of U.S. Patent 6,135,280 dated October 24, 2000, which is a continuation application of U.S. Patent 5,944,185 dated August 31, 1999. The disclosures of these applications are incorporated herein by reference.

10 BACKGROUND OF THE INVENTION

1. TECHNICAL FIELD

15 The present invention is directed generally to a storage box for an item of recorded media and a lock and key combination for the box. More particularly, the present invention is directed to a storage box and lock and key combination suitable for holding an item of recorded media that is commonly repeatedly rented prior to being offered for sale. Specifically, the present invention is directed to a storage box for an item of recorded media that holds the item while it is repeatedly rented and is configured to receive a lock carrying
20 an EAS (electronic article surveillance) tag when the item of recorded media is offered for sale.

2. BACKGROUND INFORMATION

Renting items of recorded media such as video cassettes and video games has become immensely popular in recent times given the ever increasing number of items available for home viewing and use as well as the decrease in price of the machines that play the media. Typical rental stores display the items available for rental in storage boxes that protect the items from dust, ultraviolet light, and damage from impact if accidentally dropped. Stores protect themselves against theft by placing one or more EAS tags on or inside the item of recorded media. An EAS tag is adapted to activate an alarm when passed through a sensing device that may be disposed around the exit of the store. It is generally desirable to place the EAS tags in places where they cannot be easily removed by a shoplifter.

A rental establishment typically places older rental stock out for sale when it no longer needs the item for rental. When items are put out for sale, the EAS tags are removed from the items and reused on items that are being rented. The EAS tags are removed from the items of recorded media prior to sale so that the purchaser will not activate the alarm systems in other stores with the EAS tags. Without the EAS tags in the items themselves, a rental store must protect itself against shoplifting by placing an EAS tag on the storage container holding the item for sale. It is desirable that the EAS tag be placed on the storage container in a way that allows a sales clerk to quickly and easily remove the tag after the sale is made but also in a manner that prevents a shoplifter

from easily removing the tag. Placement of the EAS tag in such a position is, however, difficult because a storage container provides few, if any, areas where the EAS tag may be hidden. If the EAS tag is placed on the storage container in a fashion such that it can be easily removed, a shoplifter may simply remove the tag and steal the item without activating the alarm. It is thus desired in the art to provide a storage container suitable for holding and displaying an item of recorded media during display for rental that has locking holes that can later accept a lock containing an EAS tag when the container is used to sell an item.

Such a storage box and lock combination must be configured to prevent the thief from simply breaking the lock off the storage box with a small pry bar. Although the storage box and lock must be relatively strong, the cost of manufacturing the lock and storage box must not be prohibitive. It is thus also desired in the art to provide a relatively inexpensive storage box and lock and key combination that securely locks the storage box while preventing a pry bar from being inserted between the lock and the storage box.

BRIEF SUMMARY OF THE INVENTION

In view of the foregoing, a principal objective of the present invention is to provide a lockable media storage box having locking holes that are configured to selectively accept a lock.

Another objective of the present invention is to provide a lockable media storage box having locking holes that may be used with different types of locks.

Yet another objective of the present invention is to provide a lockable media storage box that is configured to prevent a pry bar from being inserted between the base of the lock and the rental box.

5 A further objective of the present invention is to provide a lockable media storage box having a lock that may carry an EAS tag in a position where the EAS tag may not be easily removed from the lock without first removing the lock from the media rental box.

10 Still a further objective of the present invention is to provide a lockable media storage box and lock combination having a minimized overall outer dimension that allows storage and display space to be used efficiently.

Another objective of the present invention is to provide a lockable media storage box and lock combination that includes visual elements that make the lock appear more complicated to open than it actually is.

15 A further objective of the present invention is to provide a lockable media storage box and lock combination wherein the lock may be properly placed in locking engagement with the storage box in more than one orientation.

Another objective of the present invention is to provide a lockable media storage box and lock and key combination wherein the key may be properly engaged with the lock in more than one orientation.

20 Another objective of the present invention is to provide a lockable media storage box and lock and key combination wherein the lock may be disposed within the front cavity of existing media storage containers.

Another objective of the present invention is to provide a lockable media storage box and lock and key combination wherein the lock attaches itself to the existing front walls of existing media storage containers without requiring holes to be formed in the front wall of the container.

5 Another objective of the present invention is to provide a lockable media storage box and lock and key combination wherein the lock covers portions of five sides of the container.

10 Another objective of the present invention is to provide a lockable storage box and lock and key combination wherein the key is provided by the consumer in the form of a cutting device to destroy the lock after purchasing the storage box and lock.

15 A further objective of the present invention is to provide a lockable media storage box and lock and key combination that is of simple construction, which achieves the stated objectives in a simple, effective, and inexpensive manner, in which solves the problems and which satisfies the needs existing in the art.

20 These and other objectives and advantages of the invention are achieved by the security storage container of the present invention, the general nature of which may be stated as including a base; a lid connected to the base and movable between open and closed positions; a lock having a first lock finger and a second lock finger; the first lock finger engaging the lid; and the second lock finger engaging the base to lock the lid in the closed position.

Other objectives and advantages of the invention are obtained by a security storage container including a base having a bottom wall, a front wall, and a pair of sidewalls; the base including a hinge wall; a lid having a top wall, a front wall, and a pair of sidewalls; the lid being connected to the base and moveable between open and closed positions; the front walls of the base and lid defining a lock reception cavity; a lock having a first lock finger and a second lock finger; the first lock finger engaging the base; and the second lock finger engaging the lid to lock the lid in the closed position.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

The preferred embodiments of the invention, illustrative of the best modes in which the Applicants contemplated applying the principles of the invention, are set forth in the following description and are shown in the drawings and are particularly and distinctly pointed out and set forth in the appended claims.

Fig. 1 is a front perspective view of an open media storage box having locking holes according to the concepts of the present invention;

Fig. 2 is a rear perspective view of the storage box depicted in Fig. 1;

Fig. 3 is a front view of the first embodiment of lock for the media storage box of Fig. 1;

Fig. 4 is a top view of the lock depicted in Fig. 3;

Fig. 5 is a rear view of the lock depicted in Fig. 3;

Fig. 6 is a top view of a key for the lock depicted in Fig. 3;

Fig. 7 is a rear view of the key depicted in Fig. 6;

Fig. 8 is a side view of the key depicted in Fig. 6 taken from the left side;

Fig. 9 is a sectional view taken along line 9-9 of Fig. 7;

Fig. 10 is a front view of the first embodiment of the lock in locked engagement with the media storage box depicted in Fig. 1;

Fig. 11 is a sectional view taken along line 11-11 of Fig. 10 showing the locking fingers of the lock engaged with the locking holes of the media storage box;

Fig. 12 is a section view similar to Fig. 11 with the key of Fig. 6 in a fully engaged position having moved the locking fingers into a disengaged position;

Fig. 13 is a sectional view similar to Fig. 11 with the key in the fully engaged position and the lock completely disengaged from the media storage box;

Fig. 14 is a sectional view taken along line 14-14 of Fig. 11 showing the locking pins of the lock in fully engaged positions;

Fig. 15 is a sectional view taken along line 15-15 of Fig. 11 showing one of the locking tabs of the lid in a fully engaged position;

Fig. 16 is a sectional view taken along line 16-16 of Fig. 12 showing the chiseled tangs of the key engaging the cantilevered arms of the lock;

Fig. 17 is a front view of a second embodiment of a lock for the media storage box of Fig. 1;

Fig. 18 is a top view of the lock depicted in Fig. 17;

Fig. 19 is a rear view of the lock depicted in Fig. 17;

Fig. 20 is a top view of a key for the lock depicted in Fig. 17;

Fig. 21 is a front view of the second embodiment of the lock in locked engagement with the media storage box depicted in Fig. 1;

5 Fig. 22 is a sectional view taken along line 22-22 of Fig. 21 showing one locking finger of the lock engaging a locking hole of the media storage box;

Fig. 23 is a sectional view similar to Fig. 22 with the key of Fig. 20 in a fully engaged position showing the locking finger of the lock disengaged from the locking hole;

10 Fig. 24 is a sectional view similar to Fig. 23 with the key of Fig. 20 in the fully engaged position and lock completely disengaged from the media storage box;

Fig. 25 is a sectional view taken along line 25-25 in Fig. 22 showing the locking pins of the lock engaged with the locking holes of the media storage box;

15 Fig. 26 is a perspective view of alternative embodiment of the media storage box having locking holes according to the concepts of the present invention;

Fig. 27 is a top plan view of another embodiment of the security storage container of the present invention;

20 Fig. 28 is a side elevational view of the security storage container in an open configuration;

Fig. 29 is a front elevational view of the base portion of the security storage container of Fig. 27;

Fig. 30 is a front elevational view of the lid portion of the security storage container of Fig. 27;

5 Fig. 31 is a sectional view taken along line 31-31 of Fig. 27;

Fig. 32 is a view taken along line 32-32 of Fig. 28;

Fig. 33 is a sectional view taken along line 33-33 of Fig. 32;

Fig. 34 is a rear elevational view of the lock for the container of Fig. 27;

Fig. 35 is a side elevational view of the lock of Fig. 34;

10 Fig. 36 is a top plan view of the lock of Fig. 34;

Fig. 37 is a side elevational view of the lock of Fig. 34;

Fig. 38 is a side view of the security storage container in a closed configuration;

Fig. 39 is a sectional view taken along line 39-39 of Fig. 38;

15 Fig. 40 is a sectional view taken along line 40-40 of Fig. 37;

Fig. 41 is a view similar to Fig. 40 showing a container in a closed configuration;

Fig. 42 is a sectional view taken through one of the latches of the container when the lid is closed;

20 Fig. 43 is a top plan view of a first embodiment of the key;

Fig. 44 is a sectional view taken along line 44-44 of Fig. 43;

Fig. 45 is a sectional view of the hub and retaining ring in a closed configuration holding a CD or DVD in the security storage container;

Fig. 46 is a sectional view of the container in a closed configuration with the lock being aligned for insertion;

5 Fig. 47 is a view similar to Fig. 46 showing the lock in the inserted and locked position;

Fig. 48 is a sectional view taken along line 48-48 of Fig. 47;

Fig. 49 is a view, partially in section, of the container being lowered onto the key;

10 Fig. 50 is a view similar to Fig. 49 showing the container depressing the moveable portion of the key with the key pins inserted into the lock;

Fig. 51 is a view similar to Fig. 46 showing the key pins releasing the lock fingers from the container;

15 Fig. 52 is a view similar to Fig. 46 showing the lock being removed from the container;

Fig. 53 is a view similar to Fig. 49 showing the container being moved from the key with the lock being held on the key;

Fig. 54 is a perspective view of another embodiment of the security storage container of the present invention;

20 Fig. 55 is a view similar to Fig. 54 with the lock inserted within the lock reception cavity;

Fig. 56 is a sectional view taken along line 56-56 of Fig. 55;

Fig. 57 is a perspective view of another embodiment of the security storage container showing the lock in a locked position;

Fig. 58 is a sectional view taken along line 58-58 of Fig. 57;

Fig. 59 is a perspective view of another embodiment of the security storage container of the present invention;

Fig. 60 is a sectional view taken along line 60-60 of Fig. 59;

Fig. 61 is a perspective view of another embodiment of the security storage container of the present invention;

Fig. 62 is a sectional view taken along line 62-62 of Fig. 61;

Fig. 63 is a view similar to Fig. 62 showing a key being inserted into the lock to remove the lock from the container; and

Fig. 64 is a view similar to Fig. 62 showing the lock being removed from the container.

Similar numbers refer to similar parts throughout the specification.

DETAILED DESCRIPTION OF THE INVENTION

The lockable media rental box or storage container of the present invention is indicated generally at 10 in the accompanying drawings. Box 10 generally includes a base, indicated generally at 12, and a lid, indicated generally at 14, that is hingedly connected to base 12 and movable between open and closed positions. The open position is depicted in Figs. 1 and 2 with the closed position being depicted in all of the other Figures where box 10

appears. When box 10 is in the open position, an item of recorded media (not shown) may be placed into box 10 or removed from box 10. A pair of hubs 16 may be attached to base 12 to help retain the item of recorded media when it is received in box 10. It is to be noted that the particular embodiment of box 10 depicted in the Figures is designed and configured for holding a VHS video cassette. The concepts of the present invention may be employed with a wide variety of differently shaped boxes 10 configured to hold other types of recorded media such as video game cartridges, cassette tapes, compact discs, DVD's, computer discs, and the like. The VHS video cassette embodiment being depicted only to provide an example of the present invention and to provide an embodiment on which to describe the elements of the invention and their interrelationship.

Base 12 generally includes a bottom wall 18 from which projects a pair of sidewalls 20 and a front wall 22. Sidewalls 20 are connected to front wall 22 to provide strength to box 10. Sidewalls 20 and front wall 22 are inwardly disposed from the outer perimeter of bottom wall 18 such that a lower ledge is formed by the portion of bottom wall 18 that extends beyond walls 20 and 22. Base 12 further includes at least but preferably a plurality of retaining channels 26 extending inwardly from front wall 22. Each retaining channel includes an inner protuberance 28 that may be perhaps seen in Fig. 15.

Box 10 further includes a rear wall 30 that is connected to base 12 by a first living hinge 32. Rear wall 30 is connected to lid 14 by a second living hinge

34. Both living hinges 32 and 34 are substantially continuous along the length of rear wall 30. The implementation of two hinges 32 and 34 allows rear wall 30 to be folded downwardly away from sidewalls 20 such that an item of recorded media may be more easily removed and inserted into box 10.

5 Lid 14 includes an upper wall 40 from which a pair of sidewalls 42 and a front wall 44 extend. Sidewalls 42 and front wall 44 of lid 14 are also disposed inwardly of the outer perimeter of upper wall 40 such that an upper ledge 46 substantially similar to lower ledge 24 is formed. Walls 42 and 44 of lid 14 are disposed inwardly slightly more than walls 20 and 22 of base 12 such that walls
10 42 and 44 fit inwardly of walls 20 and 22 when lid 14 is in the closed position. It is desirable that walls 42 and 44 frictionally engage walls 20 and 22 when lid 14 is in the closed position to create a frictional force that helps keep lid 14 in the closed position. In addition to this frictional force, a retaining tab 48 extends from front wall 44 of lid 14 to correspond with each retaining channel 26 of base
15 12. Each retaining tab 48 includes a protuberance 50 configured to cooperate with inner protuberance 28 when lid 14 is in the closed position to hold lid 14 in the closed position as depicted in Fig. 15.

 In accordance with one of the primary objectives of the present invention, box 10 includes elements that enable box 10 to receive a lock that locks lid 14
20 in the closed position when box 10 is removed from the rental shelf and used to sell an item of recorded media. These elements include the configuration of front wall 22 and at least one locking tab 60 that extends from front wall 44 of lid

14. In accordance with one of the primary objectives of the present invention, box 10 includes at least one locking tab 60, but preferably two locking tabs 60, that extend from lid 14 with each tab 60 having a first locking hole 62 therethrough. Front wall 22 of base 12 includes a second locking hole 64 that is disposed to align with first locking hole 62 of locking tab 60 when lid 14 is in the closed position as depicted in Fig. 14. As will be discussed in more detail below, the alignment of holes 62 and 64 allows box 10 to be locked by an appropriate lock.

Wall 22 may further include a locking hole set 66 that may include second locking hole 64. Each locking hole set 66 may include a third locking hole 68 that is positioned vertically below second locking hole 64 for a purpose described in more detail below. Each locking hole set 66 may also include a pair of locking finger holes that are configured to receive a lock as is described below in more detail.

In accordance with another objective of the present invention, a pair of protection ribs 72 extend between lower ledge 24 and upper ledge 46 when lid 14 is in the closed position. Ribs 72 are disposed outward of locking hole sets 66. Protection ribs 72, lower ledge 24, and upper ledge 46 form a lock reception cavity 74 around locking hole sets 66.

It may thus be understood that box 10 is capable of holding an item of recorded media (not shown) preferably an item that is being repeatedly rented. Box 10 is further capable of storing an item of recorded media while the item is

displayed for sale and is configured to receive a lock that prevents lid 14 from being opened when the lock is in place.

An alternative lockable box is depicted in Fig. 26 and is indicated generally at 80. Alternative embodiment of box 80 is substantially similar to the embodiment of box 10 described in detail above and thus similar numbers are used to refer to similar parts. Box 80 includes a base 12 and a lid 14 as in the previously-described embodiment. Base 12 includes a bottom wall 18 from which extend a pair of sidewalls 20 and a front wall 22. Lid 14 is hingedly attached to base 12 by a pair of living hinges 32 and 34 and a rear wall 30.

Lid 14 includes an upper wall 40 from which a pair of sidewalls 42 and a front wall 44 extend. Both walls 20, 22, and wall 42 and 44 are disposed inwardly from the outer perimeters of bottom wall 18 and upper wall 40 to form a lower ledge 24 and an upper ledge 46. A plurality of retaining tabs 48 extend from front wall 44 and carry protuberances 50 that help frictionally engage base 12 to hold lid 14 in the closed position.

Box 80 also includes at least one locking tab 90 extending from at least one of sidewalls 42 of lid 14. Each locking tab 90 has a first locking hole 92 disposed therein. In the embodiment of box 80 depicted in Fig. 26, four locking tabs 90 extend from lid 14. In other embodiments of the present invention, locking tabs 90 may only be provided on one of sidewalls 42.

Sidewalls 20 of base 12 include a second locking hole 94 that is disposed to align with first locking hole 92 when lid 14 is in the closed position. Each

second locking hole 94 is part of a locking hole set 96 that includes a third locking hole 98 and a pair of locking finger holes 100. A pair of protection ribs 102 extend outwardly from each sidewall 20 having locking hole sets 96. Protection ribs 102 cooperate with lower ledge 24 and upper ledge 46 to define a lock reception cavity 104.

It may thus be understood that box 80 provides a lockable box that is capable of holding an item of recorded media during its rental period and subsequent storage prior to sale. Box 80 is lockable when lid 14 is in the closed position causing first locking holes 92 to align with second locking holes 94. In this position, a lock may be passed through these holes preventing lid 14 from being opened.

A first embodiment of a lock for either box 10 or 80 is depicted in Figs. 3 through 5 and is indicated generally by the numeral 110. Lock 110 generally includes a body 112, at least one locking pin 114, and at least one locking finger 116. In general, at least one locking pin 114 prevents box 10 or 80 from being opened when lock 110 lockably engages box 10 or 80. Locking fingers 116 provide the locked connection between lock 110 and box 10 or 80. Body 112 also defines a storage cavity 118. An EAS tag 120 may be disposed fully within cavity 118 such that no portion of EAS tag 120 protrudes beyond the boundaries of body 112 as may be seen in Fig. 4. Body 112 also defines a key hole 130 that is disposed in body 112 to align with each locking finger 116.

5 In addition to locking pins 114 and locking fingers 116, lock 110 also includes a cantilevered arm 132 having an anchored end 134 and a free end 136 disposed adjacent one of locking fingers 116. Cantilevered arms 132 provide visual deterrents to a shoplifter by making lock 110 appear more complicated to pick than it actually is by partially blocking key hole 130. It may be understood that one cantilevered arm 132 may be disposed adjacent each locking finger as depicted in the drawings but that other combinations are also contemplated by the present invention.

10 Each key hole 130 includes a first portion 140 that may be substantially circular as depicted in the drawings and a second portion 142 that may be rectangular as depicted in the drawings. As can be seen in Fig. 3, first portion 140 of each key hole 130 is disposed to align with a locking finger 116. It may also be seen that second portion 142 is aligned with free end 136 of cantilevered arm 132.

15 Each locking finger 116 and cantilevered arm 132 is fabricated to be resilient such that it may be urged away from its rest position by a force and when the force is removed they return to the at rest position depicted in Fig. 5. Locking pins 114 are preferably fabricated from a metal that may not be easily sheared but may also be fabricated from a suitable plastic. Each locking pin 114 is long enough to pass through both front wall 22 and locking tab 60 of box 10 as specifically depicted in Fig. 14. Similarly, each locking finger 116 is configured to extend into a locking finger hole 70 in front wall 22 of box 10 and

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engage the rear surface 146 thereof as depicted in Fig. 11. Furthermore, each cantilevered arm 132 has an angled face 148 that faces key hole 130.

In accordance with another objective of the present invention, lock 110 may not be easily pried from box 10 when lock 110 is locked onto box 10. As may be seen in Fig. 11, body 112 includes a rectangular perimeter portion 150 having a height no greater than the depth of lower ledge 24 or upper ledge 46. Body 112 further includes a slanted portion 152 that prevents a pry bar from gaining a solid grip on lock 110. It may thus be understood that lock 110 is partially disposed within lock reception cavity 74 of box 10 when lock 110 is locked engagement with box 10. In this position, ledges 24 and 46 cooperate with protection ribs 72 to prevent a pry bar from being inserted under lock 110.

Lock 110 is placed into locked engagement with box 10 by aligning locking fingers 116 and locking pins 114 with the holes of locking hole sets 66 and pressing lock 110 against box 10. The force causes locking fingers 116 to flex inwardly and snap through locking finger holes 70 in wall 22. Holes 70 may have angled sidewalls to facilitate the engagement. Locking fingers 116 may also have angled edges that cooperate with holes 70. When locking fingers 116 are fully inserted in holes 70, they snap back outwardly and engage inner surface 146 of front wall 22. As may be seen in Fig. 11, lock 110 may not be removed until locking fingers 116 are urged inwardly. While in the locked position, locking pins 114 of lock 110 are received in holes 64 and 68 of locking hole set 66.

As may be seen in Fig. 14, pin 114 received in second locking hole 64 is also received in first locking hole 62 of locking tab 60 to lock lid 14 in a closed position. Locking pin 114 received in the third locking hole 68 provides stability to lock 110 but does not engage lid 14 in the embodiment of the invention depicted in the drawings. In other alternative embodiments, both locking pins 114 may engage lid 14.

It may be understood that lock 110 may be attached to box 10 in two orientations due to the symmetry of locking pins 114, locking fingers 116, and locking hole sets 66. Such symmetry allows lock 110 to be quickly and easily installed on box 10 without concern for the proper alignment of pins 114 and fingers 116.

A key for use with lock 110 is depicted in Figs. 6 through 9 and is indicated generally at 160. Key 160 includes a spine 162 from which extends key shanks 164. Key shanks 164 are configured to be slidably received in first portion 140 of key hole 130. Each shank 164 has a tooth 166 extending therefrom that is configured to be slidably received in second portion 142 of key hole 130. Each tooth 166 has a chiseled face 168 that engages free end 136 of cantilevered arm 132 when key 160 is inserted into a fully engaged position with lock 110. When fully engaged, each tooth 166 engages cantilevered arm 132 and urges it to one side or the other as depicted in Fig. 16. When key 160 is in the fully engaged position, each shank 164 engages locking finger 116 to urge it inwardly such that lock 110 may be removed from box 10 as depicted in

Figs. 12 and 13. It may be understood that key 160 is also symmetric such that it may be properly inserted into lock 110 in either of two orientations.

It may thus be understood that box 10 may not be opened when lock 110 is in locked engagement with box 10. Lid 14 of box 10 may not be opened because at least one of locking pins 114 extends through front wall 22 of base 12 and at least one locking tab 60 of lid 14. Further, a shoplifter cannot remove EAS tag 120 from lock 110 without either removing or damaging lock 110. Lock 110 may not be removed without key 160 because at least one locking finger 116 lockingly engages front wall 22 of box 10 until urged out of engagement by shanks 164 of key 160. Thus the objectives of the invention are achieved by box 10, lock 110, and key 160.

A second embodiment of a lock for either box 10 or 80 is depicted in Figs. 17 through 19 and is indicated generally at 210. Lock 210 generally includes a body 212, at least one locking pin 214, and at least one locking finger 216. In general, at least one locking pin 214 prevents box 10 or 80 from being opened when lock 210 lockingly engages box 10 or 80. Locking fingers 216 provide the locked connection between lock 210 and box 10 or 80. Body 212 also defines a storage cavity 218. An EAS tag 220 may be disposed fully within cavity 218 such that no portion of EAS tag 220 protrudes beyond the boundaries of body 212 as is seen in Figs. 19 and 22. Body 212 also defines a pair of key slots 230 that are disposed on either end of lock 210. Each locking pin 214 is preferably fabricated from a metal that is anchored in body 212 of lock 210. Metal is

preferred because it may not easily be sheared but other suitable plastics may be used in place of metal locking pins 214 without departing from the scope of the present invention. Each locking pin 214 is long enough to pass through both front wall 22 and locking tab 60 of box 10 as is specifically depicted in Fig. 25.

5 Each locking finger 216 is configured to extend into a locking finger hole 70 in front wall 22 of box 10 and engage rear surface 146 thereof as depicted in Fig. 22. Each locking finger 216 is integrally connected to a resilient arm 232 and a pivot arm 234. Locking fingers 216, resilient arms 232, and pivot arms 234 are pivotally carried by body 212 on a pivot pin 236 that is clamped between
10 a first flange 238 and a second flange 240. To allow locking fingers 216 to be pivoted by a key which is generally indicated at 260, a metal clip 242 is carried by pivot arm 234. Clip 242 must be fabricated from a material that is magnetically attractive so that pivot arm 234 may be moved by magnetic force.

 In accordance with another object of the present invention, lock 210 may
15 not be easily pried from box 10 when lock 210 is locked onto box 10. As seen in Figs. 21 and 22, body 212 includes a curved portion 252 that prevents a pry bar from gaining a solid grip on lock 210. Body 212 is also configured to fit closely within lock reception cavity 74 of box 10. In this position, ledges 24 and 46 cooperate with protection ribs 72 to prevent a pry bar from being inserted
20 under lock 210.

 Lock 210 is placed into locked engagement with box 10 by aligning locking fingers 216 and locking pins 214 with the holes of locking hole set 66

and pressing lock 210 against box 10. The force causes locking fingers 216 to engage front wall 22 adjacent holes 70 causing resilient arms 232 to flex allowing locking fingers 216 to snap into holes 70 and engage rear surface 146 of front wall 22. Holes 70 may have angled sidewalls to facilitate the engagement. Locking fingers 216 may also have angled edges that cooperate with holes 70. When locking fingers 216 are fully inserted in holes 70, they snap back outwardly due to the resilient force of resilient arms 232. As is seen in Fig. 22, lock 210 may not be removed from box 10 until locking fingers 216 are urged inwardly. While in the locked position, locking pins 214 of lock 210 are received in holes 64 and 68 of locking hole set 66. As seen in Fig. 25, pin 214 received in second locking hole 64 is also received in first locking hole 62 of locking tab 60 to lock lid 14 in a closed position. Locking pin 214 received in third locking hole 68 provides stability to lock 210 but does not engage lid 14 in the embodiment of the invention depicted in the drawings. In other alternative embodiments, both locking pins 214 may engage lid 14.

Lock 210 may be attached to box 10 in two orientations due to the symmetry of locking pins 214, locking fingers 216, and locking hole set 66. Such symmetry allows lock 210 to be quickly and easily installed on box 10 without concern for the proper alignment of pins 214 and fingers 216.

A key for use with lock 210 is depicted in Fig. 20 and is indicated generally at 260. Key 260 includes a spine 262 and a pair of arms 264. Each arm 264 carries a magnet 266 that is strong enough to pull pivot arm 234 toward

itself while flexing resilient arm 232 to cause locking finger 216 to release wall 22. Magnets 266 are positioned such that their magnetic field does not damage the item of recorded media (not shown) carried in box 10 or EAS tag 220. This protection is provided in part by the configuration of lock body 212 in that it places multiple layers of body 212 material between magnet 266 and box 10. Further protection is provided by the arrangement of magnets 266 such that their strongest magnetic field is directed away from interior of box 10. Spine 262 and arms 264 are configured to place arms 264 within slots 230 when key 260 engages lock 210. This position is depicted in Fig. 23. In this position, magnets 266 attract pivot arms 234 causing locking fingers 216 to disengage wall 22. Magnets 266 are strong enough to flex resilient arms 232. When key 260 is removed from lock 210, resilient arms 232 return to their at rest position and reset lock 210. Key 260 is also symmetric such that it may be properly inserted into lock 210 in either of two orientations.

Another embodiment of the box or security storage container of the present invention is indicated generally by the numeral 300 in Figs. 27-53. Security storage container 300 includes a base 312 and a lid 314 hingedly connected to base 312 and moveable between open and closed positions. The open position is depicted in Figs. 27 and 28 with the closed position being depicted in Fig. 38. When security storage container 300 is in the open position, an item of recorded media 315 such as a CD or DVD may be placed into storage container 300 or removed from storage container 300. In the embodiment of

storage container 300 depicted in the drawings, base 312 is configured to receive a CD or DVD on a mounting hub 316 (see Fig. 45). Hub 316 may be any of a variety of hubs known in the art adapted to hold a CD or DVD 315 on hub 316. In the embodiment of the invention depicted in the drawings, hub 316 includes a support shelf 317 disposed above the inner surface of base 312 and at least a pair of protuberances 319 that are disposed over the upper surface of disc 315 to hold disc 315 on hub 316. In addition to protuberances 319, storage container 300 includes a retaining ring 321 that extends inwardly from lid 314. Ring 321 overlies hub 316 and prevents disc 315 from falling off of hub 316 even when container 300 is subjected to impact forces. Ring 321 may be continuous or broken into individual portions.

Although the specific embodiment of storage container 300 shown in the drawings is designed to hold a CD or DVD, those skilled in the art will understand that the concepts of the present invention may be employed with a wide variety of differently shaped storage containers configured to hold other types of recorded media such as video game cartridges, cassette tapes, compact discs, DVDs, computer discs, VHS tapes, video tapes, digital audio tapes, and the like. The CD/DVD storage container depicted in the drawings only provides an example of the present invention to provide an embodiment on which to describe the elements of the invention and their interrelationship.

Base 312 generally includes a bottom wall 318 from which projects a pair of sidewalls 320 and a front wall 322. Sidewalls 320 are connected to front wall

322 to provide strength to storage container 300. Front wall 322 is inwardly disposed from the outer perimeter of bottom wall 318 such that a lower ledge 324 is formed by the bottom portion of bottom wall 318 that extends beyond wall 322. Sidewalls 320 are preferably disposed very close to the outer perimeter of bottom wall 318 so that a shoplifter cannot grasp the protruding portion of bottom wall 318 and tear bottom wall 318 away from sidewalls 320. Base 312 further includes latches 325 that are configured to engage 314 as will be described in more detail below.

Base 312 of storage container 300 further includes a rear wall 330 that is connected to bottom wall 318 by a first living hinge 332. Rear wall 330 is connected to lid 314 by a second living hinge 334. Both living hinges 332 and 334 are substantially continuous along the length of rear wall 330 with the exception of strengthening ribs 331 depicted in Fig. 32. Strengthening ribs 331 are breaks in living hinges 332 and 334 that strengthen hinges 332 and 334 against tearing. Ribs 331 are preferably fabricated adjacent the outer edge of wall 300.

Lid 314 includes an upper wall 340 from which a pair of sidewalls 342 and a front wall 344 extend. Sidewalls 342 and front wall 344 of lid 314 are disposed inwardly of the outer perimeter of upper wall 340 such that an upper ledge 346 is formed. Walls 342 and 344 of lid 314 are disposed inwardly more than walls 320 and 322 of base 312 such that walls 342 and 344 fit inwardly of walls 320 and 322 when lid 314 is in the closed position. Walls 342 and 344 frictionally

engage walls 320 and 322 when lid 314 is moved to the closed position to create a frictionally holding force that helps keep lid 314 in the closed position. In addition to this frictional force, latches 325 engage wall 344 to hold lid 314 closed.

5 In accordance with one of the objectives of the present invention, storage container 300 includes elements that enable storage container to receive a lock that locks lid 314 in the closed position when the user of storage container 300 desires to prevent access to the item of recorded media stored in storage container 300. These elements include at least one but preferably four first
10 locking holes 362 defined by front wall 322 of base 312. Front wall 344 of lid 314 includes corresponding second locking holes 364 that align with first locking holes 362 when lid 314 is in the closed position. The alignment of holes 362 and 364 allows storage container 300 to be locked with an appropriate lock.

15 Front wall 322 may additionally include an additional set of third locking holes 366 that correspond to fourth locking holes 368 defined by wall 344. In accordance with one of the objectives of the present invention, holes 362, 364, and 366 are symmetrically disposed in walls 322 and 344 so that the lock used to lock lid 314 may be installed in two configurations.

20 In accordance with another objective of the present invention, a pair of protection ribs 372 extend from base 312 between lower ledge 324 and upper ledge 346 when lid 314 is in the closed position. Ribs 372 are disposed outward

of locking holes 362, 364, and 366 to form a lock reception cavity 374 around the locking holes.

The locking holes of storage container 300 may also be formed on walls 320 and 342 if desired.

5 Base 312 and lid 314 include various elements that help to securely hold base 312 and lid 314 together when storage container 300 is locked. These elements help to prevent the shoplifter from prying container 300 open by prying the corners and joints of container 300 apart when container 300 is locked.

10 One of the security elements is a pair of L-shaped walls 380 formed on base 312 adjacent hinge 332 and sidewalls 320. L-shaped walls 380 receive the end portions of walls 342 of lid 314 when lid 314 is in the closed position as depicted in Figs. 39 and 41. As perhaps best shown in Fig. 40, the inner end of wall 342 includes a step 382 that corresponds with L-shaped wall 380 so that step 382 abuts wall 380 when lid 314 is closed as depicted in Fig. 41. Each L-shaped wall 380 includes a first portion disposed substantially parallel to hinge 332 that prevents wall 342 from being moved toward wall 330 when lid 314 is closed. Each L-shaped wall 380 further includes a second portion disposed substantially parallel to walls 320 that prevents walls 320 and 342 from being pushed inwardly when lid 314 is closed. The cooperation of L-shaped walls 380 and walls 342 thus reinforce the connection of lid 314 and base 312 adjacent hinges 332 and 334 and help resist an attack by a shoplifter in these areas.

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The inner end of each wall 320 includes an extension 384 that extends outwardly from wall 320 to the end of wall 330 as shown in Fig. 39. Extension 384 prevents the shoplifter from grasping or striking wall 330 in an attempt to break living hinges 332 or 334 and access the storage compartment of container 300 through wall 330.

Another security element is a pair of corner walls 386 extending upwardly from wall 318 adjacent the intersection of walls 320 and wall 322. Corner walls 386 form channels that snugly receive the corners 388 on lid 314 where walls 342 and 344 intersect. Fig. 46 also shows the reception of corners 388 in between corner walls 386 and walls 320/322. This arrangement increases the rigidity of container 300.

Another security feature is a dovetailed connection between the lock 390 and container 300. The dovetailed connection between the two elements is achieved by providing a pair of inwardly projecting male dovetailed lugs 392 on base 312 that preferably project inwardly from protection ribs 372 as shown in Fig. 29. Lock 390 defines female dovetailed slots 394 at its ends that cooperate with lugs 392 so that a snug, sliding connection is formed when lock 390 is mounted in lock reception cavity 374. The dovetailed connection between lock 390 and container 300 helps container 300 to resist prying forces imparted by a shoplifter who is trying to break into container 300.

The outer dimensions of lock 390 allow lock 390 to be entirely disposed within lock reception cavity 374 in the locked position. Lock 390 includes a set

of first lock pins 396 that are spaced and configured to be received in lock holes 362 and 364 to prevent lid 314 from being moved away from the closed position when lock 390 is in the locked position. In the preferred embodiment, lock 390 includes four first lock pins 396. Lock 390 also includes four guide pins 398 that are configured and arranged to be received in holes 366/368 formed in base 312 and lid 314. Guide pins 398 also lock lid 314 to base 312 thus increasing the number of security elements from four to eight.

Lock 390 is locked to container 300 with locking fingers 402. Each locking finger 402 is preferably formed from a resilient material such as spring steel that is flexible but will return to its original position. Each locking finger 402 includes a hooked end 404 configured to be received in lock cavities 406 when lock 390 is pulled away from container 300. Lock fingers 402 also pass through walls 322 and 344 creating four more elements holding walls 322 and 344 together when lock 390 is in the locked position. Lock fingers 402 are inserted through locking finger holes 408 defined by walls 322 and 344. In the preferred embodiment of the invention, lock fingers 402 are disposed between guide pins 398 with both guide pins 398 and lock fingers 402 disposed between pairs of first lock pins 396.

Lock 390 further includes pin openings 410 that allow key pins 412 on a key 414 to move locking fingers 402 from the locked to the unlocked position. In the preferred embodiment, one pin opening 410 is aligned with each lock finger 402. Locking finger holes 408 formed in wall 344 include an angled wall

416 that directs key pins 412 toward locking finger 402 to insure that locking finger 402 is properly moved from the locked position to the unlocked position.

Key pins 412 are arranged on key 414 to coincide with each lock finger 402. Key 414 includes a body 420 and a base 422. Key pins 412 are anchored in base 422 and extend upwardly through body 420. Body 420 includes a fixed perimeter portion 424 and a moveable portion 426. Moveable portion 426 is mounted on a pair of resilient members such as springs 428 between upper and lower positions. Key pins 412 extend up through moveable portion 426 and are just barely visible above the upper surface of moveable portion 426 when moveable portion 426 is in the upper position as depicted in Fig. 44. When moveable portion 426 is moved to the lower position, key pins 412 extend up farther as shown in Fig. 50. A lock 430 is carried on moveable portion 426 and allows moveable portion 426 to be locked in the upper position so that key 414 may not be used.

Moveable portion 426 includes a tray 432 configured to receive lock 390 when lock 390 is removed from container 300. A second tray 434 engages container 300 and prevents container 300 from moving down into tray 432.

Security storage container 300 functions by first placing disc 315 over hub 316 and moving lid 314 to the closed position. The user may then insert lock 390 into lock reception cavity 374 so that lid 314 is locked in the closed position. When the user wishes to open lid 314, container 300 and lock 390 are lowered onto key 414 until container 300 engages tray 434. The engagement of

container 300 and tray 434 allows the user to move moveable portion 426 downwardly so that key pins 412 move up through lock 390 to release lock fingers 402 from container 300. When released, lock 390 falls into tray 432 and the user may remove container 300 and open lid 314. Lock 390 may be reused on container 300 or any other similar container 300.

Another embodiment of the security storage container of the present invention is indicated generally by the numeral 500 in Figs. 54-56 and 59-60. Security storage container 500 generally includes a storage container 502 and a lock 504 that is configured to lock storage container 502 in a closed position until lock 504 is removed from container 502. In this embodiment of the invention, lock 504 is intended to be sold along with container 502 and the item of recorded media stored therein to the consumer wherein the consumer removes lock 504 and discards lock 504. Lock 504 is thus a single-use lock that is intended to be destroyed when it is removed from storage container 502.

In the embodiments of the invention depicted in the drawings, storage container 502 is configured to hold a disc-shaped item of recorded media such as a CD or a DVD. Storage container 502 may also be configured to hold other types of recorded media such as those described above with respect to the other embodiments of the invention.

Storage container 502 includes a base 506 and a lid 508. Base 506 includes a hinge wall 510 that hinges base 506 to lid 508. Hinge wall 510 is preferably includes a first living hinge 512. Hinge wall 510 is preferably

connected to lid 508 by second living hinge 514. Base 506 and lid 508 cooperate to entirely surround the item of recorded media stored in container 502. Container 502 may include some type of holding device to mount the item of recorded media while the item of recorded media is stored within container 502. The holding device may be one of the numerous hubs known in the art.

Base 506 also includes a bottom wall 516, a pair of sidewalls 518, and a front wall 520. Lid 508 includes a top wall 522, a pair of sidewalls 524, and a front wall 526.

Front wall 520 of base 506 includes a concave indentation 530 that is defined by a rear wall 532 and a lower wall 534. Front wall 520 also includes an upwardly extending lip 536 extending across cavity 530 in front of rear wall 532.

Front wall 526 also includes a cavity 540 that substantially matches cavity 530 described above. Cavity 540 is defined by rear wall 542 and an upper wall 544. Front wall 526 also includes a lip 546 extending across cavity 540 in front of rear wall 542. When lid 508 is in the closed position as depicted in the drawings, cavities 530 and 540 cooperate to form a lock reception cavity configured to entirely receive lock 504. In the preferred embodiment of the invention, lock 504 does not protrude out of the lock reception cavity when lock 504 is in the locked position as depicted in Figs. 56 and 60. In accordance with one of the objectives of the present invention, lock reception cavity is the same concave cavity formed in most existing front walls of existing storage containers.

Security storage container 500 includes at least one, but preferably two, lock holes 550 defined by rear walls 532 and 542. Lock 504 includes lock fingers 552 disposed on lock 504 to engage lock holes 550 when lock 504 is positioned in the lock reception cavity. Each lock finger 552 includes a protuberance 554 that is sized somewhat larger than the diameter or opening of its lock hole 550 so that lock 504 cannot be easily pulled back out of the lock reception cavity once lock fingers 552 and protuberances 554 are snapped through lock holes 550. Protuberances 554 are fabricated from a material that is pliable or flexible enough to be forced through lock holes 550. Each protuberance 554 is configured to have a catch surface that prevents protuberance 554 from being easily pulled back through lock hole 550. In the embodiment of the invention depicted in Fig. 56, each protuberance 554 extends entirely around lock finger 552. In the embodiment depicted in Fig. 60, each protuberance 554 extends around only half of lock finger 552.

Lock 504 is configured to be disposed entirely within the lock reception cavity in the preferred embodiments of the invention so that a shoplifter cannot easily grasp lock 504 and pull lock 504 away from container 502. In other embodiments of the invention, lock 504 may be substantially disposed within the lock reception cavity such that portions of lock 504 may extend from the lock reception cavity but those portions would be difficult to grasp by the shoplifter. In accordance with another objective of the invention and as shown in Figs. 55

and 59, lock 504 substantially fills the lock reception cavity so that the shoplifter cannot easily insert a thick pry bar between walls 520/526 and lock 504.

When lock 504 is installed by snapping lock fingers 552 through lock holes 550, lid 508 may not be moved from the closed position to an open position without removing lock 504 or destroying another portion of container 502. Lock 504 is designed to be sold to the consumer along with container 502 and the item of recorded media stored in container 502. The consumer removes lock 504 by destroying lock 504. In the embodiment depicted in Figs. 54-56, lock 504 is formed with a centrally disposed opening 560 that allows the consumer to cut lock 504 into two pieces by using a knife or a pair of scissors. Opening 560 allows relatively easy access to lock 504 during the cutting procedure. Lock 504 may additionally include visible cut lines 562 that show the consumer where the cuts must be made to open container 502. Cut lines 562 may be perforations formed in lock 504 or simply lines formed on the outer surface of lock 504. After lock 504 is cut into two pieces, lid 508 may be moved to the open position and the consumer may remove the pieces of lock 504 by pushing lock fingers 552 back through holes 550 or by severing protuberances 554 and removing lock 504.

In the embodiment of the invention depicted in Figs. 59 and 60, lock 504 includes a plurality of spaced, aligned openings 564 that allow the consumer to cut lock 504 into two pieces to allow container 502 to be opened.

Another embodiment of the security storage container of the present invention is indicated generally by the numeral 600 in Figs. 57 and 58. Security storage container 600 includes storage container 502 described above and a lock 604 that holds lid 508 in the closed position with respect to base 506 when lock 604 is in the locked position.

Lock 604 is configured to extend over at least a portion of five walls of container 502 to hold container 502 in the closed position until lock 604 is removed. In the preferred embodiment of the invention, lock 604 is snapped onto the end of container 502 that opens opposite hinge wall 510 as depicted in Fig. 57.

Lock 604 includes a front wall 610 configured to be slightly larger than a combination of walls 520 and 526 of container 502. A pair of sidewalls 612, a top wall 614, and a bottom wall 616 extend rearwardly from front wall 610 to form a container reception cavity 618. Walls 612, 614, and 616 are configured to snugly and frictionally engage container 502 about the perimeter of container 502 and at least partially cover or engage four of the walls of container 502. In the embodiment depicted in the drawings, sidewalls 612 engage walls 518 and 524, top wall 614 covers or engages wall 522, and bottom wall 616 covers or engages wall 516. Front wall 610 covers front walls 520 and 526 of container 502.

Lock 604 includes a plurality of lock fingers 620 that extend rearwardly from front wall 610. Each lock finger 620 includes a protuberance 622 in the

form of a hook configured to engage a lip 536 or 546 to hold lock 604 securely on container 502 so that it cannot be easily removed. Each protuberance 622 preferably has an angled surface that engages the outer edge of lip 536 or 546 as lock 604 is being placed on container 502. The force created by the angled wall bends lock finger 620 around lip 536 or 546 until the catch surface of finger 620 snaps behind lip 536 or 546 to secure lock 604 to container 502.

In the embodiment of the invention depicted in Figs. 57 and 58, lock 604 includes a plurality of openings 630 that are spaced apart and aligned. Openings 630 allow the consumer to cut lock 604 into two halves to remove it from container 502 after security container 600 is purchased and removed from the retail establishment. Lock 604 may further include cut lines 632 that identify the areas that must be cut to remove lock 604 from container 502. In the preferred embodiment, lock 604 only includes opening 630. In other embodiments, lock 604 may include additional openings 634 that provide additional openings for the consumer to attack lock 604.

Another embodiment of the security storage container of the present invention is indicated generally by the numeral 650 in Figs. 61-64. Security storage container 650 includes storage container 502 and a lock 654 that may be selectively locked to and unlocked from container 502. Lock 654 is thus reusable and may be removed by a retail clerk when container 502 is sold. Lock 654 includes many of the same elements discussed above with respect to lock 604 and the same numbers are used to refer to these elements.

Lock 654 includes lock fingers 660 that are configured to engage lips 536 and 546. Lock fingers 660 include protuberances 662 that catch on lips 536 and 546 in a manner similar to protuberances 622 described above. Each lock finger 660 in lock 654 is configured so that it may be moved from a locked position to an unlocked position by a key pin 670. In the embodiment depicted in the drawings, key 654 includes a plurality of lock fingers 660 projecting upwardly and a plurality of lock fingers projecting downwardly. Each upwardly projecting lock fingers 660 is aligned with a key hole 672 with each downwardly projecting lock fingers 660 being aligned with a key hole 674 (Figs. 61 and 62). Key hole 672 and 674 allow the user to insert key pin 670 as shown in Fig. 63. Key pins 670 engage lock fingers 660 to move them from the locked position to the unlocked position as depicted in the arrows drawn in Fig. 63. Once lock fingers 660 are in the unlocked position, the user may withdraw lock 654 from container 502 and reuse lock 654.

Those skilled in the art will recognize that other configurations for lock fingers 660 and key holes 672 and 674 may be used without departing from the concepts of the present invention. In accordance with the objectives of the present invention, lock 654 may be used to lock container 502 without altering container 502. Container 502 does not require holes to be formed in any walls for lock 654 to properly function.

The improved lockable media storage box with lock and key is simplified, provides an effective, safe, inexpensive, and efficient device which achieves all

the enumerated objectives, provides for eliminating difficulties encountered with prior devices, and solves problems and obtains new results in the art.

In the foregoing description, certain terms have been used for brevity, clearness, and understanding; but no unnecessary limitations are to be implied therefrom beyond the requirement of the prior art, because such terms are used for descriptive purposes and are intended to be broadly construed.

Moreover, the description and illustration of the invention is by way of example, and the scope of the invention is not limited to the exact details shown or described.

Having now described the features, discoveries, and principles of the invention, the manner in which the lockable media storage box with lock and key is constructed and used, the characteristics of the construction, and the advantageous new and useful results obtained; the new and useful structures, devices, elements, arrangements, parts, and combinations are set forth in the appended claims.